

### *Abstract*

The present invention provides methods and compositions for interaction trap assays for detecting protein-protein, protein-DNA, or protein-RNA interactions. The methods and compositions of the invention may also be used to identify agents which may agonize or antagonize a protein-protein, protein-DNA, or protein-RNA interaction. In certain embodiments, the interaction trap system of the invention is useful for screening libraries with greater than  $10^7$  members. In other embodiments, the interaction trap system of the invention is used in conjunction with flow cytometry. The invention further provides a means for simultaneously screening a target protein or nucleic acid sequence for the ability to interact with two or more test proteins or nucleic acids.